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## Using electronic surveying to assess psychological distress within the UK university student population: a multi-site pilot investigation

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### Abstract

This paper describes the level of psychological distress within university students participating in an evaluation of a web-based intervention for alcohol use. Data was collected from 1129 students from four UK universities. Psychological distress was assessed using an online version of the CORE-10. Results showed that 29% of students reported clinical levels of psychological distress. Eight percent of students had moderate-to-severe or severe levels of distress. The items tapping depression and anxiety suggest that, when compared to depression scores, levels of anxiety are heightened. These findings are discussed in light of the evidence which suggests that traditional modes of support delivery may not be sufficient for all students. The possibility that web-based therapeutic interventions could be utilized within this highly computer literate population is explored.

**Keywords:** student; psychological well-being; mental health; web-based intervention; e-health; CORE-10

### Introduction

Internationally there is an enduring interest in the mental health of university students, with studies from around the world reporting heightened levels of psychological distress within the student population (e.g., Everly et al., 1994; Henry, 1986; Nagayama, Aikawa & Matsunaga, 1972). Recent changes in UK higher education, namely the abolition of student grants in favour of student loans and the introduction of tuition fees, have resulted in students' lives becoming increasingly pressurised. These changes have meant that the lives of students are different in many ways to that experienced by students 20 or 30 years

ago (Association for University and College Counselling (AUUC), 1999; Royal College of Psychiatrists (RCP), 2006). As a result there have increasingly been calls to better understand the psychological well-being of university students both in the US (Bertocci, Hirsch, Sommer & Williams, 1992; Hayes, 1997) and the UK (Grant, 2002; Grant & Wolfson, 2001; Humphrey & McCarthy, 1998; Monk & Mahmood, 1999; Roberts, Golding, Towell & Weinreb, 1999).

Within the UK there is now the expectation that 50% of young people will attend higher education by 2010 (Court, 2004). Some have expressed concern that this widening participation agenda may result in higher levels of psychological distress within the student population (RCP, 2006); especially given the evidence that students from non-traditional backgrounds, who have been disadvantaged in many respects, may require greater support in order to cope with the stresses of being a student (AUUC, 1999).

Where research has compared the well-being of students to that of the general population, university students generally fare worse on measures of psychological well-being (e.g., Roberts & Zelenyanski, 2002; Roberts et al., 1999; Stewart-Brown et al., 2000). Some studies of student mental health have focused on identifying causes of stress for students while others have tried to discover the relationship between these and mental health. Academic, relationship and financial difficulties have been found to be some of the major causes of stress for university students (Grant, 2002) and relationships between these variables and mental health have also been found (e.g., Andrews & Wilding, 2004; Monk, 2004; Roberts & Zelenyanski, 2002). From previous studies it appears that between 22% and 54%

of the university student population report heightened levels of psychological distress (Webb, Ashton, Kelly & Kamali, 1996; Andrews & Wilding, 2004; Cooke et al., 2006). There is also evidence from single university samples within the UK that the period spent at university is an anxious rather than depressive time (Andrews & Wilding, 2004; Cooke et al., 2006).

Previous UK studies have suggested that levels of anxiety may be higher in female students when compared to their male peers (Cooke et al., 2006; Webb et al., 1996). In addition it appears that psychological distress increases with time across the degree course (Andrews & Wilding, 2004; Cooke et al., 2006).

The majority of the current UK research has used the traditional pen and paper survey approach within a single university population. A notable exception is the work of Webb et al. (1996) who included 3075 second year students from 10 universities; unfortunately the results did not discuss institutional differences. According to ratings on the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), students reported higher levels of anxiety (54%) when compared to depression (13%). However it is possible that the psychological stressors experienced by students have altered considerably over the last decade and it is not clear if these changes have resulted in changes to student psychological well-being, nor is it clear if levels of psychological distress differ across institutions.

Over the past decade there has been an increasing development in the area of IT, particularly web-based procedures in the field of assessment and self-help. The use of such health technologies may be ideally suited to university students. Hence, our aim in the present study was to evaluate the feasibility of using a web-based mode of delivery to assess the level of psychological distress within university students participating in an evaluation of a web-based intervention for alcohol use.

## Method

### Participants

A sample of 2284 university students who registered to take part in an evaluation of a web-based intervention for student alcohol use were asked to complete a pre-intervention survey that included a measure of psychological well-being. Students were recruited to the larger study via campus-wide student emails. The recruitment process emphasised that both consumers and non-consumers of alcohol were required to take part. Forty-nine percent ( $n=1129$ ) of students responded. The distribution of sensible, harmful and hazardous drinking behaviour within the sample was similar to that reported by studies that have investigated alcohol consumption within the general student population (e.g., Bewick et al., 2008a). Students were drawn from four universities across the UK.

Several universities agreed to participate only if they were not identified; hence none are named. Each university contributed the following number of participants: Institution 1  $n=580$  (51%); Institution 2  $n=365$  (33%); Institution 3  $n=103$  (9%); Institution 4  $n=76$  (7%). Seventy-four percent were female ( $n=832$ ), 88% ( $n=985$ ) were White/White British, 94% ( $n=1058$ ) were undergraduate students. The mean age was 21.4 ( $SD=5.1$ ) with an age range between 17 and 58 years. The study was approved by Leeds East NHS Research Ethics Committee.

### Materials

The questions detailed were part of a wider survey investigating student alcohol consumption however only the items of relevance to the current paper are discussed here. Students were asked to complete the Clinical Outcomes in Routine Evaluation ten item measure (CORE-10) (Connell & Barkham, 2007), a short-form of the Clinical Outcomes in Routine Evaluation Outcome Measure CORE-OM (Barkham et al. 2001, 2005; Evans et al. 2002). The CORE-10 comprises 10 items relating to the domains of symptoms (anxiety, depression, physical and trauma), life functioning and risk to self. The psychometric properties of the CORE-10 have shown it to have good internal reliability with an alpha for the overall scale of 0.82 (CI 0.79-0.85) (Connell & Barkham, 2007). To be a reliable measure of psychological distress at least nine of the ten items must be completed. All items were scored from 0 ('not at all') to 4 ('all the time') and item scores were totaled and divided by the number of items completed yielding a mean item score of between 0 and 4. Paralleling procedures in reporting findings using the CORE-OM, CORE-10 mean score was multiplied by 10 yielding a score from 0 to 40 and referred to as a student's *clinical score* (Leach et al., 2006); providing participants answer all ten items this procedure is equivalent to adding up all individual item scores. Lower clinical scores indicate better mental health. A clinical score of above 10 is indicative of heightened psychological distress. The following CORE-10 clinical score cut points were applied:  $<6.2$  healthy,  $6.2 < \leq 10$  low levels of distress,  $10 < \leq 15$  mild severity,  $15 \geq < 20$  moderate severity,  $20 \geq < 24.7$  moderate-to-severe,  $\geq 24.7$  severe (Connell & Barkham, 2007; Barkham, et al. 2006). Within the current sample the values of Cronbach's Alpha were 0.82 for the clinical score and 0.81 and 0.68 for depression (2 items) and anxiety (2 items) respectively.

### Procedure

The electronic survey was designed using the Bristol Online Survey system (2007). Students who had registered to take part in the project were contacted by email via their university during the autumn semester of the 2007/08 academic year. The email included a url link that enabled students to access the survey using the Internet. After

receiving the email students had four weeks to complete the survey. Two reminder emails were sent to students during the four weeks. For participating in the wider study students were entered into an institutional prize draw to win one of four £25 Amazon gift certificates.

## Results

The mean CORE-10 clinical score was 8.02 (SD=6.09). When scores were coded according to level of psychological distress 46% (n=520) scored within the 'healthy' range and a further 25% (n=282) of students had low levels of distress and were therefore also within the non-clinical range. Twenty-nine percent (n=327) of students had raised CORE-10 clinical scores (i.e., clinical score>10). This included 8% (n=88) students who had moderate-to-severe or severe levels of distress (see Table 1).

graduate status (i.e., undergraduate or postgraduate) ( $F(2, 1115)=0.98, p>0.05$ ;  $F(2, 1115)=0.67, p>0.05$ ;  $F(2, 1115)=0.24, p>0.05$ ); university institution ( $F(3, 1114)=0.82, p>0.05$ ;  $F(3, 1114)=0.82, p>0.05$ ;  $F(3, 1114)=1.48, p>0.05$ ) or year of study within the undergraduate sample ( $F(2, 1052)=0.18, p>0.05$ ;  $F(2, 1052)=0.74, p>0.05$ ;  $F(2, 1052)=1.28, p>0.05$ ).

## Discussion

Approximately one in three university students who participated in the current study reported heightened levels of psychological distress. This figure is within the range reported previously (66%>8 Anxiety HAD Andrews and Wilding, 2004; 23% above GP-CORE cut-off Cooke et al., 2006; 54%>8 Anxiety HAD Webb et al., 1996). That 8% of students are reporting moderate-to-severe or severe levels of distress is notable. Given reports that traditional services (e.g., referral to counselling) may not be sufficient for some

Table 1 CORE-10 Clinical Scores for the male, the female, and the overall sample

	Male <i>n</i> =292		Female <i>n</i> =832		Overall <i>n</i> =1129	
	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )
<b>CORE-10 scores</b>						
CORE-10 Clinical Score (10 items)	8.02	(6.09)	8.63	(6.50)	8.47	(6.41)
Depression (2 items)	7.74	(8.42)	9.01	(9.29)	8.70	(9.12)
Anxiety (2 items)	8.36	(8.38)	9.54	(9.16)	9.25	(9.01)
	<i>N</i>	(%)	<i>N</i>	(%)	<i>N</i>	(%)
<b>Level of psychological distress</b>						
<i>Non-clinical range</i>						
Healthy	147	(50.3)	369	(44.4)	520	(46.1)
Low	70	(24.0)	212	(25.5)	282	(25.0)
<i>Clinical range</i>						
Mild	26	(8.9)	107	(12.9)	133	(11.8)
Moderate	32	(11.0)	74	(8.9)	106	(9.4)
Moderate-to-severe	13	(4.5)	45	(5.4)	58	(5.1)
Severe	4	(1.4)	25	(3.0)	30	(2.7)

Paired t-tests revealed significantly higher anxiety compared to depression scores within the overall sample ( $t(1123)=2.644, p<0.01$ ). Once split by sex this difference remained for females ( $t(826)=2.16, p<0.05$ ) but was not significant for males ( $p>0.05$ ).

Scores on depression differed significantly between male and female students ( $F(1, 1116)=1.92, p<0.05$ ). No significant differences in clinical score ( $F(1, 1116)=1.92, p>0.05$ ) or anxiety ( $F(1, 1116)=3.71, p>0.05$ ) were found between the sexes.

No significant differences in clinical score, depression or anxiety were found between students with differing:

students (Brandon & Payne, 2002), future research would benefit from investigating if these students are receiving the support they require to enable them to successfully complete their degree course.

Unlike previous studies the current results found no difference in levels of anxiety between the sexes. Additionally, levels of psychological distress were comparable across the undergraduate degree course and no institutional differences were found. Since the current study was not powered specifically to test for between degree course or institutional differences these results should be

interpreted with caution but they do warrant further investigation.

Despite differing methodologies across studies, this is the third UK study to have found higher levels of anxiety when compared to depression. While recent developments in the UK have meant that UK University students now have a signposted online resource for depression (i.e., Students Against Depression, 2007), work to develop a comprehensive cross-university online resource for student levels of anxiety appears to be lagging. The Internet has provided a promising avenue for delivering brief interventions to students (e.g., Bewick et al., 2008b) and recent advances in computerized Cognitive Behavioural Therapy (CBT) suggest that web-based interventions are effective for treating depression and anxiety (Spek et al., 2007). Given the willingness of students to respond to online surveys and to engage with brief web-based interventions (Richards & Tangney, 2007) this could be a useful way to moderate the levels of anxiety within the student population.

The current investigation suggests that students are prepared to answer questions about their psychological well-being electronically. That 49% of students sampled responded to the survey is encouraging; however there is a need for further understanding of who participates in online surveys and how we can best minimise non-responders within a student population. The current study did include a small incentive (in the form of a prize draw) but it may be that students would respond better to a different form of incentive and/or a greater chance of 'winning'.

A number of limitations should be acknowledged. The current study included only students who were taking part in a study investigating the effectiveness of a web-based intervention for student alcohol use and therefore we do not know if the mental health of these students differs from students who choose not to participate in the evaluation. In addition, the study included a high proportion of females (74%) and therefore the representativeness of the sample would have to be ascertained before extrapolating the results to the wider student population. The current study used the CORE-10 as a measure of psychological distress, the measure was designed both as a screening tool for psychological distress and also as an outcome measure for the psychological therapies. Therefore while the current results provide an indication of possible levels of anxiety and depression within the student population, future studies would benefit from including standardized measures of anxiety and depression (e.g., PHQ-9, GAD-7) in order to more accurately, and comprehensively assess these dimensions within this population.

## Conclusions

That a third of participants from across four UK universities had raised levels of psychological distress is of

concern. Perhaps more importantly almost 1 in 10 students were scoring within the moderate to severe range. Given this, there is a need to ensure that students are able to access the services and support they require in order to successfully graduate from their degree course. The Internet offers an innovative and potentially cost effective way of providing tailored resources and support to students. The majority of university students are highly computer literate and seemingly willing to engage with web-based material therefore internet delivered therapeutic interventions should be explored as a means of providing support within this population.

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